DOCUMENT RESUME

ED 085 350 SP 007 517

TITLE	Interval Training.
INSTITUTION	President's Council on Physical Fitness and Sports, Washington, D.C.
PUB DATE	[66]
NOTE	7p.
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	*Athletic Programs; Exercise (Physiology); *Interval Pacing; *Physical Education; *Running; Teaching Techniques

ABSTRACT

Regardless of the type of physical activity used, interval training is simply repeated periods of physical stress interspersed with recovery periods during which activity of a reduced intensity is performed. During the recovery periods, the individual usually keeps moving and does not completely recover before the next exercise interval (e.g., running a predetermined distance at a set pace, then jogging another distance at a set pace). The interval training approach offers the possibility of accomplishing a greater amount of work in a shorter period of time and the possibility of programs of unlimited variety and flexibility. To aid physical education instructors in organizing their class time, several programs were developed based upon time for the 600-yard run-walk and the mile run. This paper presents such an approach as an excellent way to initiate an interval training program in a physical education class where time is limited and relatively large numbers of students have to be handled. (Two charts with running times and interval running times are included; there is also a blank interval running recording form.) (Author/JA)

ED 085350

FILMED FROM BEST AVAILABLE COPY

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

SP

PRESIDENT'S COUNCIL ON PHYSICAL FITNESS AND SPORTS
INTERVAL TRAINING

NOV 27 1973

During the past decade, interval training has become one of the most commonly used methods of conditioning individuals for competition in events requiring physical endurance or stamina. It has been used by almost all distance runners during the past 10 years including such great athletes as Roger Bannister, John Landy, Herb Elliott, Peter Snell, Jim Beatty and Jim Ryan. The interval training approach is used universally for the training of swimmers, cyclists and rowers as well as members of soccer, hockey and basketball teams during pre-season conditioning programs. Many coaches have contributed much of the tremendous improvement in the performance of endurance events in track and field and swimming to the increased use of interval training by athletes of both sexes and all ages and abilities.

Regardless of the type of physical activity used (running, swimming, cycling, bench stepping, etc.) interval training is simply repeated periods of physical stress interspersed with recovery periods during which activity of a reduced intensity is performed. During the recovery periods, the individual usually keeps moving and does not completely recover before the next exercise interval. If running is the activity to be used, then the individual runs a specified distance at a pre-determined pace (such as 440 yards in 80 seconds) and then jogs or walks for a specified distance or time. This procedure is then repeated a certain number of times depending on the ability of the individual and the time available. The primary advantage of interval training over other forms of endurance conditioning is that with the interval approach a greater amount of work can be performed in a shorter period of time. This feature allows for substantial improvements in endurance fitness to be achieved by individuals who cannot or do not care to spend more than 25 to 30 minutes a day training.

By alternating periods of vigorous physical activity with periods of light activity or recovery, a wide variety of training programs can be designed to meet the needs, ability and interests of the individual and to fit within the available time and facilities. The total amount of exercise or work performed by an individual during interval training can be varied in several ways. They include variations in the (1) speed or intensity of the effort, (2) duration or distance of the effort, (3) the number of times the effort is repeated, (4) the length of the recovery period and (5) the nature of the activity during the recovery period.

SP 007 517

Because of the ability to vary each of these components separately or together, the interval approach to training offers the possibility of unlimited variety and flexibility. However, this wide versatility also makes it difficult for most physical education instructors to use the interval approach without spending a great deal of class time organizing and developing individualized programs.

In order to facilitate the application of interval training methods in physical education programs for high school and college age boys, several programs were developed based upon 600 yard run-walk and mile run time.* The approach presented here is simply an expedient method of initiating an interval training program in a physical education class where time is limited and relatively large numbers of students have to be handled. It is not intended as a training program for competitive purposes even though the general training principles are the same.

In order to use this program, the students first have to perform a 600 yard run-walk or a mile run. The results of either one of these tests are used to group the students into various performance categories but they also can be used as a baseline evaluation for determining the success of the program if the test is repeated following the training. Once the test has been administered, the students are grouped according to the performance time listed in the left hand column of Charts I (600 yard run-walk) or II (mile run).

Run time for four distances from 110 to 440 yards are given for each performance category in Charts I and II. One of these distances is selected and the individual runs that distance in the time listed. The number of times these runs are repeated (repetitions) and the duration of the recovery interval between each run is given at the bottom of the chart under "Beginning Programs." The distance run can be interchanged from training session to training session but it is recommended that students perform the 220-yard or 352-yard program for the first few training sessions, (i.e., an individual who has a 600-yard run-walk time between 2:15 and 2:29 would be placed in performance category #5. If 200 yards were selected as the training distance, then his training program would consist of running 220 yards 6 to 9 times at 43-45 seconds with a one minute jogging recovery interval between each run).

---

* Programs and forms modified from Foundations of Physical Activity W. C. Adams, et al. Champaign, Illinois. Stipes Publishing Co., 1965.

As an individual's physical condition improves, the intensity of the program can be increased by increasing the number of repetitions, increasing the speed of the run or reducing the time of the recovery interval. If time is available, it is recommended that first the number of repetitions be increased until the program requires approximately 20 minutes. Once this is accomplished or if time does not permit an increase in repetitions, the intensity of the program should be increased by having the participants run faster.

The average time for performing any of the beginning programs is from 12 to 16 minutes, depending on the distance selected. During this reasonably short period of time, a substantial increase in endurance capacity can be achieved if these programs are used on a regular basis for 8 weeks or more.

Chart III is a suggested recording form to be used by each student. Use of such a form will allow the student to observe his own progress and permit the instructor to readily detect improper programs or problems.

CHART I

BEGINNING INTERVAL RUNNING PACE SCHEDULE FOR SENIOR HIGH SCHOOL BOYS

Based on 600-yard Run-Walk Time

Performance groupings for 600-yard run-walk time.	Min:Sec	Interval run time (seconds) for different distances			
		110 Yards	220 Yards	352 Yards	440 Yards
1.	1:15-1:29	14-15	30-32	51-55	65-69
2.	1:30-1:44	15-16	33-35	56-59	70-74
3.	1:45-1:59	16-17	36-39	60-63	75-79
4.	2:00-2:14	17-18	40-42	64-67	80-84
5.	2:15-2:29	18-19	43-45	68-71	85-89
6.	2:30-2:44	19-20	46-49	72-75	90-94
7.	2:45-2:59	20-21	50-52	76-79	95-99
8.	3:00-3:14	21-22	53-55	80-83	100-104
9.	3:15-3:29	22-23	56-59	84-87	105-109
10.	3:30-3:44	23-24	60-62	88-91	110-114
11.	3:45-3:59	24-25	63-65	92-95	115-119
12.	4:00+	25+	66+	96+	120+

Beginning Programs

110 Yards: From 8-12 repetitions, with 45 seconds jogging recovery interval between each.

220 Yards: From 6 to 8 repetitions, with 1 minute jogging recovery interval between each.

352 Yards: From 4 to 6 repetitions, with 1 minute and 30 seconds jogging recovery interval between each.

440 Yards: From 3 to 5 repetitions, with 2 minutes jogging recovery interval between each.

CHART II

BEGINNING INTERVAL RUNNING PACE SCHEDULE FOR SENIOR HIGH SCHOOL BOYS

Based on Mile Run Time .

Performance groupings for Mile Run Time		Interval run time (seconds) for different distances			
	Min:Sec	220 Yards	320 Yards	352 Yards	440 Yards
1.	4:45-4:59	30-32	46-49	51-54	65-69
2.	5:00-5:14	32-34	49-52	54-57	69-73
3.	5:15-5:29	34-36	52-55	57-60	73-77
4.	5:30-5:44	36-38	55-57	60-63	77-81
5.	5:45-5:59	38-40	57-60	63-66	81-85
6.	6:00-6:14	40-42	60-63	66-69	85-89
7.	6:15-6:29	42-44	63-66	69-72	89-93
8.	6:30-6:44	44-46	66-68	72-75	93-97
9.	6:45-6:59	46-48	68-71	75-78	97-101
10.	7:00-7:14	48-50	71-74	78-81	101-105
11.	7:15-7:29	50-52	74-76	81-84	105-109
12.	7:30-7:44	52-54	76-79	84-87	109-113
13.	7:45-7:59	54-56	79-82	87-80	113-117
14.	8:00 and up	56+	82+	90+	117+

Beginning Programs

220 Yards: From 6 to 9 repetitions, with 1 minute jogging recovery interval between each.

320 Yards: From 5 to 7 repetitions, with 1 minute and 20 seconds jogging recovery interval between each.

352 Yards: From 4 to 6 repetitions, with 1 minute and 30 seconds jogging recovery interval between each.

440 Yards: From 3 to 5 repetitions, with 2 minutes jogging recovery interval between each.

CHART III

INTERVAL RUNNINC RECORDING FORM

Session	Date	Fast Run Yardage	Number of Fast Runs	Rest Interval Time	Times for each Fast Run
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					

Example: (assuming 600 yd. run time of 2:05)

Date	Fast Run Yardage	Number of Fast Runs	Rest Interval Time	Times for each Fast Run
9/22	110	10	45	17, 19, 18, 16, 18, 19 17, 18, 17, 16

Testing Results:

	600 Yd. Run #1	600 Yd. Run #2	600 Yd. Run #3
Date			
Time			

REFERENCES

1. Sinisalo, U. V. and T. Juurtola. "Comparative Study of the Physiological Effects of Two Training Methods." The Research Quarterly 28:288-294, October 1957.

2. Yakolev, N. N., et al. "Physiological and Chemical Adaptation to Muscular Activity in Relation to Length of Rest Periods Between Exertion During Training." Sechenov, 45:48-55, August 1961.

3. Christensen, E. H. "Intervallarbeit und Intervalltraining." Arbeits physiologie, 18:345-356, 1961.

4. Reindell, R., H. Roskamm and W. Gerschler. Das Intervalltraining. Munich: Darth, Inc., 1962. Pp. 105.

5. Doherty, J. Kenneth. Modern Training for Running. Englewood Cliffs, N. J.: Prentice-Hall, Inc. 1964. Pp. 87-106.

6. Nett, T. "Examination of Interval Training." Run Run Run (F. Wilt, editor), Los Altos: Track and Field News, 1964. pp. 256.

7. Haskell, W. L. "The Effects of Three Endurance Training Programs on Energy Metabolism." Proceedings of XVI World Congress of Sports Medicine, Hanover, Germany, June 1966.

GPO 919-361